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ABSTRACT

One of a series of papers developed as part of a project to improve planning and evaluation in community colleges, this working paper discusses the outcomes approach to evaluation in higher education and describes current projects utilizing outcomes measures in community colleges. Section I defines the outcomes approach as an analysis of the end products of organizational activities, cites prior attempts to create models and concepts for outcomes research in higher education, and presents an outcomes typology that categorizes research and writing. Section II discusses the relationship of outcomes evaluation to community and junior colleges and describes different types of learner outcomes (i.e., concrete learner outcomes such as transfer, degree attainment, and employment and income; abstract learner outcomes such as cognitive and affective development; and social learner outcomes such as benefits to the local community and to society at large). Section III reviews the ways in which the outcomes evaluation approach is currently being used in the evaluation and operation of postsecondary institutions, focusing on the standardized testing and measurement of outcomes, attempts to refine the concept of outcomes in postsecondary education, and the use of the approach in institutional management and the creation of funding formulas. Finally, the last section summarizes the current issues in outcomes evaluation. (HB)

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ED250041

Improving Community College Evaluation and Planning

PROJECT WORKING PAPER NUMBER TEN

MEASURING COMMUNITY COLLEGE LEARNER OUTCOMES: STATE-OF-THE-ART

VC 840 578

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  #8 Information Systems Report
  #9 Evaluating Statewide Priorities

from the project on

Improving Community College Evaluation and Planning

jointly sponsored by the

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and partly supported by a grant from the federal Fund for Improvement of Postsecondary Education.

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PROJECT WORKING PAPER NUMBER TEN

MEASURING COMMUNITY COLLEGE LEARNER OUTCOMES: THE STATE OF THE ART

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MEASURING COMMUNITY COLLEGE LEARNER OUTCOMES: THE STATE-OF-THE-ART

PREFACE

This working paper on Measuring Learner Outcomes is one of a series of papers resulting from a three-year project to improve evaluation and planning in community colleges. The project is sponsored jointly by the Chancellor's Office of the California Community Colleges and by the Western Association Accrediting Commission for Community and Junior Colleges. Project work is concentrated in California and Hawaii, the jurisdiction of the Western Accrediting Commission. Support for the project is provided by community colleges in these states, the two sponsoring aggencies, and by the federal Fund for Improvement of Postsecondary Education (FIPSE).

Project objectives include developing a clear statement of the responsibilities for evaluation and planning that are appropriate for state control agencies, accrediting commissions, and for local community colleges. Tensions about the appropriate division of these responsibilities exist throughout the country. A long tradition of cooperation in California and Hawaii, however, has created a most congenial atmosphere in which to analyze and clarify the proper delineation of roles.

Project staff also are developing a series of tools to improve the state-of-the art of evaluation and planning for community colleges. Beginning in the Fall 1982, these tools have been introduced, used and assessed in a dozen workshops, self-study seminars, symposia, and problem-solving sessions conducted in California and Hawaii. These activities will continue through the Fall of 1984. While project work is being concentrated in the two states, it should be possible to generalize the results to virtually any community college operation or governance structure in the country.

Working Paper Ten was prepared earlier in the project as a basis to begin work on the use of outcome measures in community college planning and evaluation. This paper assesses the literature and existing efforts that deal with the measurement of learner outcomes in community colleges. Definitions and models for outcomes measures are discussed, first for higher education generally then for community colleges specifically. This is followed by an examination of the ways outcome measures are used for evaluation. The paper concludes with a summary of the current issues in outcome evaluation.

This paper served as background information for a three-day symposium of leading experts from across the country that was held in December 1982. This symposium involved a thorough discussion of the topic and proceedings are available. Results of the symposium have since been used in project workshops and are the basis for further project work to develop measures and strategies for actual use in college evaluation efforts.

The reader will note that we, the project staff, have other responsibilities.

Consequently, were it not for the help and assistance of countless others in both Hawaii and California, this effort would be impossible. The extensive research and writing behind Working Paper Ten were performed by Greg Heilman, at the time a graduate student at the University of California, Berkeley. Expert comment and editorial advice were provided by Ernie Berg of the California State Chancellor's Office. We also want to thank Evelyn Stacey of the State Chancellor's Office and Rich Montori of Monterey Peninsula College for their excellent work, respectively, in typing the manuscript and in the art and printing for this document.

We especially appreciate the support from FIPSE. Receipt of the Fund's grant has set in motion a series of commitments on the part of others whose support (in money and in kind) is essential to the successful completion of this project and the implementation of its results.

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Introduction

This paper is being presented as a component of the joint FIPSE project entitled Improving Community College Evaluation and Planning. It is intended to provide a foundation for the discussion of the following issues:

The strengths and weaknesses of the outcomes approach to evaluation in higher education.

Strategies for applying the outcomes approach to community colleges.

The use of existing sources of outcome data in the evaluation and planning of California's community colleges. These sources include the California Community College Chancellor's Office Information System.

Information useful for the discussion of these issues will be presented in three sections.

Section I of this paper will define the language of outcome evaluation and cite prior attempts to create models and concepts for outcome research in higher education. This section will also introduce a typology that categorizes outcome evaluation research and writing.

Section II will relate outcome evaluation to community and junior colleges. The major types of two-year college outcomes will be identified and literature that examines

them will be cited. This section will focus on the methods and issues that surround outcome research in two-year institutions.

Section III will review the ways in which the outcome evaluation approach is currently being incorporated in the evaluation and operations of postsecondary institutions. These efforts include the standardized testing and measurement of outcomes, attempts to refine the concept of outcomes in postsecondary education, and the use of outcomes as institutional management tools and in the creation of funding formulas.

Section IV will offer a summary of the current issues in outcome evaluation.

Section I - The Outcomes Approach

Definitions

The term "outcomes" has become a part of the language of organizational analysis. Used broadly, it refers to the end products of organizational activities. In higher education the simplest and most common outcome studies use simple descriptive statistics to depict such things as degrees awarded and average grade point averages of students.

Studies that examine more complex outcomes in higher education have become common in the last 50 years. Various authors have drawn together this outcome literature into reviews that define outcomes in specific ways. For example, in Measuring Outcomes of College, Pace (1979) used the term "outcome" to refer to the findings of large scale "achievement testing, alumni surveys, and studies of institutions." Achievement tests document knowledge acquisition as an outcome. Alumni surveys utilize follow-up studies and longitudinal designs to ascertain what outcomes have manifested over time in the lives of graduates. Institutional studies do not usually focus on learner outcomes as such but examine the organizational activities that create learner outcomes.

Feldman and Newcomb (1969) reviewed and analyzed educational outcomes but focussed on different kinds of studies and favor a different definition. In a two-volume review that encompassed over 1,500 empirical studies conducted

between the 1920's and the 1960's, they advanced the concept of "impact" to characterize the "change or development or adaptation" brought about in students. In this case, outcomes refers to the cognitive and affective changes experienced by individuals during the time spent in school.

Bowen (1974) presented a consise but thorough definition of the outcomes of higher education. He delineated three major educational services and the outcomes associated with them. The first service he identified was instruction. The outcomes associated with it were learning and changes in human traits. The second service identified was research and scholarship that result in the "preservation, discovery, and interpretation of knowledge, artistic and social criticism, philosophical reflection, and advancement of the fine arts." The third service identified was public service and its outcomes were identified as improved public health, agricultural productivity, and contributions to the solution of social problems.

A more general definition of outcomes was offered by Lenning et al (1977). In arriving at their definition, the authors did not use empirical studies but instead reviewed the theoretical literature of higher education. They examined the concept of outcomes by reviewing models, typologies, and taxonomies that have been advanced to identify them, eventually defining outcomes as "any results or consequences of an educational institution and its programs."

This broad definition is intended to subsume the narrower ones, thereby opening the consideration of outcomes to include such areas as community service, provision of technology and cultural activities. Their work incorporated the concerns of authors and researchers in higher education and organizational theory. They accounted for as many higher education outcomes as possible, including those defined as "planned output" (Hoenack et al, 1974), "ultimate consequences" (Robinson and Majak, 1967), "intended benefits" (Hitch, 1970) and "side effects" (Cook and Scioli, 1972). The authors proposed six basic questions to make their broad definition usable. A condensed version of these questions and the considerations they entail are presented in Figure 1 (from Micek, 1980).

Other writers use the term outcome to denote the productivity of educational institutions. The consideration of productivity requires the linking of outputs with inputs in order to define educational outcomes. Inputs are generally defined as resources entering into organizational activities; outputs as the specific products of an organizational activity. When the two are linked, the considerations of institutional efficiency, effectiveness, and performance arise.

Peterson (1977) delineated a number of performance measures and assembled them into the typology of input/output ratios represented in Table 1. Giving specific

Figure 1

SIX BASIC QUESTIONS IMPORTANT FOR UNDERSTANDING AN EDUCATIONAL OUTCOME AND THE ATTRIBUTES OR FACTORS ASSOCIATED WITH EACH

1. WHAT ARE THE CHARACTERISTICS AND MAKEUP OF AN "EDUCATIONAL OUTCOME"?

   Form - the basic configuration of the outcome as it is observed and/or measured. Outcomes can be separated into products, events, and conditions.

   Change Status - whether the outcome results in maintaining (preserving, replenishing, reproducing, or stabilizing) or changing (modifying, enriching, restructuring, or replacing) the existing condition or state of affairs.

   Focus - the basic, specific "what" that is maintained or changed to constitute the outcome of concern (knowledge, understanding, skills, attitudes, roles, certification status, jobs, income, social conditions, technology, art forms, and so forth).

   Neutrality - although people attach positive or negative value connotations to specific outcomes, the generic concept of "outcome" is a neutral one separated from any inherent value status.

   Measurability - the ease with which the outcome can be quantified or measured. Some outcomes are easily measured; others are difficult to measure.

   Output/Impact - whether there is a direct link between the outcome and its producer/facilitator (output), or an indirect link between the outcome and its producer/facilitator through outputs and intermediary impacts (impact).

2. WHICH INSTITUTIONAL RESOURCES AND ACTIVITIES ARE COMBINED, AND IN WHICH WAYS, TO BRING ABOUT THE OUTCOME(S) OF CONCERN?

   Producer/Facilitator - the programmatic or functional activities of an educational institution or its components that produce and facilitate, or are intended to produce and facilitate, particular educational outcomes.

3. FOR WHOM IS THE OUTCOME INTENDED, OR WHO ACTUALLY RECEIVED OR WAS AFFECTED BY IT?

Audience - the persons, groups, organizations, communities, aggregations of people with common observable characteristics, activities or other entities that receive and/or are affected by (or are intended to receive or be affected by) the outcome of concern.

4. WHY WILL, OR DID, THE OUTCOME OCCUR?

Intended/Unintended - whether the outcome was designed or planned to occur or whether it just happened. Included are the positive, negative, or neutral value connotations attached to an outcome by different people and groups, and the "exchange value" perceived for the outcome by its producer/facilitator.

5. WHERE WILL, OR DID, THE OUTCOME OCCUR?

Functional Area - the functional areas within the various audience entities that are being affected by (or that are meant to be affected by) the outcome, such as economic, educational/technological, political, and social/cultural/personal.

6. WHEN WILL, OR DID, THE OUTCOME OCCUR?

Time - the time, or expected time, of occurrence of an outcome (such as prior to graduation, more than one year after graduation) and the duration or persistence of the outcome (how long it lasts).

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TABLE 1

A TYPOLOGY OF PERFORMANCE MEASURES

Outcome Measures	*Example*
I. Outcome Measure (O)	
A. Quantitative	Number of degrees awarded
B. Qualitative	Average test scores of graduates
II. Outcome Efficiency (In/O)	
A. Quantitative	Instructional cost/degree
B. Qualitative	Cost average test scores of graduates
III. Outcome Effectiveness (O/G)	
A. Quantitative	Number of degrees/goal for number of degrees
B. Qualitative	Average test score of grads/goal for average test score
IV. Performance Effectiveness (In/O/G)	
A. Quantitative	Cost/degree/goal for graduates
B. Qualitative	Cost level of average test scores of graduates/goal

Impact Measures	*Example*
I. Impact Measures (I)	
A. Quantitative	Average time to complete degree
B. Qualitative	Average gain on standardized test from entry to graduation
II. Impact Efficiency (In/I)*	
A. Quantitative	Cost/average time to complete
B. Qualitative	Cost/unit of average gain on standardized test
III. Impact Effectiveness (I/G)	
A. Quantitative	Average time to complete degree/goal for average time
B. Qualitative	Average gains on standardized test/goal for gains.
IV. Performance Effectiveness (In/I/G)*	
A. Quantitative	Cost/average time to complete degree/goal
B. Qualitative	Cost/average test score gain/goal

*or cost-benefit efficiency or effectiveness

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definitions to outcome and impact, he described the measures as follows:

> "(Table 1) provides a simplified model of qualitative and quantitative outcome measures. It is evident here that impact measures differ from outcome measures in trying to assess the effects of an educational experience in terms of gains, as compared with final output. Impact and outcome measures can be viewed in terms of the cost of resources to achieve them as input/output or efficiency ratios for outcomes (In/O) or impacts (In/I). Alternatively, outcome or impact measures can be viewed in terms of their relationship to some standard of intended goal (G): as an outcome effectiveness (O/G) or an impact effectiveness (I/G) measure. Furthermore, since performance measures are intended to relate inputs to outputs as well as compare them to some standard goal, performance effectiveness measures can be expressed as the input/output ratio for either inputs or outcomes compared to the goals or standards established for them. Thus, outcome-based performance effectiveness measures are designed as IN/O/G, and impact-based performance effectiveness measures are shown as In/I/G. In essence, impact based performance effectiveness measures are analogous to cost-benefit measures." (pages 4-5)

Linking outcomes to inputs in a different way, Astin (1977) was concerned with the difference between the value or level of the input and the value or level of the output (outcome). This relationship is not a ratio but an additive relationship; hence the term "value-added." As a psychologist Astin uses the term to denote the contribution of higher education to an individual's intellectual, emotional and social life. In other words, value-added can refer to the cognitive, affective, psychological and behavioral gains that a student enjoys because of his exposure to higher education.

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Alternatively, an economic definition of value-added was utilized by Breneman and Nelson (1981):

> "The essence of value-added is a comparison between a student's situation or prospects for the future upon entering college with his situation or prospects at the end of his enrollment. The rate of return adds the costs of generating those benefits into the calculations. Technically, this approach determines the rate at which future income resulting from the education (the value-added in terms of income) must be discounted to equal the cost of providing the education."

This definition emphasizes the economic outcomes of education in which the cost of the education is weighed against the benefits.

It is clear that current concepts of outcomes in higher education imply a broad range of effects. Outcomes can be classified in categories that vary from specific impacts on individuals to broad socio-economic phenomena. A second dimension for the classification of outcomes is concreteness to abstractness. For example, the intellectual refinement or analytical skills enjoyed by a student are substantive outcomes of higher education but are abstract when compared to the concrete outcome of the degree the student was awarded or the income he may enjoy as a result of his increased capabilities. A third dimension for the classification of outcomes is time; outcomes may be immediate or they may surface only after months or years in the life of the individual or society. Much of the equivocation of the term "impact" revolves around this dimension of time. For

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some, impact means immediate outcomes, for others it means ultimate consequences.

The three dimensions just described can be used to classify the outcomes of higher education. These dimensions can be summarized as:

- the individual/social dimension
- the concrete/abstract dimension, and
- the dimension of time.

Two of these three dimensions can be assembled into a typology that is useful for the classification and analysis of educational outcomes.

An Outcomes Typology

The typology presented in Table 2 has been constructed for the purposes of this paper. It incorporates the individual/social dimension and the concrete/abstract dimension of outcomes. The form of this typology requires that the range of concrete and abstract outcome values be dichotomized. Material and atheoretical outcomes (e.g. achievement scores, community service, income, degrees awarded) are concrete. Outcomes that are non-material or depend on theoretical constructs of disciplines such as psychology and philosophy are considered abstract (e.g. changes in the affective domain, increase in the humanism of society). The individual/social dimension is already dichotomous. For the sake of simplicity and utility the dimension of time is not

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directly incorporated into this framework. The consideration of time, or when outcomes are manifested, will be included as needed.

TABLE 2
A TYPOLOGY OF EDUCATIONAL OUTCOMES

	CONCRETE	ABSTRACT
INDIVIDUAL	Type 1	Type 2
SOCIAL	Type 3	Type 4

The empirical literature on outcomes in higher education tends to deal with only one type of outcome at a time, usually Type 1 or Type 2 (the effects on individuals). The conceptual literature may deal with one type or any combination of types. In the overview of the literature that follows, consideration will be given to the broad conceptual approaches to outcomes that include two or more types of outcomes.

An Overview of the Concepts and Models of Outcomes in Higher Education

This overview is highly selective in its content. The information summarized here was chosen for two purposes; first, to illustrate the diversity of approaches to identifying outcomes, and second, to provide examples deemed useful for the FIPSE project.

Some of the material contained in this subsection is taken from the work of Lenning (1977). Under the sponsorship of the National Institute of Education (NIE) and the National Center for Higher Education Management Systems (NCHEMS) the author assembled "over 80 previous attempts to structure educational outcomes and related concepts." Many of these reports were made available on a limited basis; they appeared in the proceedings of conferences, in institutional publications, or in other primary sources that are not readily available. As a result, the NCHEMS survey is an

invaluable secondary source of the conceptual literature on educational outcomes.

The Lenning survey was a precursor to another NCHEMS publication titled A Structure for the Outcomes of Post-secondary Education (Lenning et al, 1977). As was stated previously, the authors of this later publication defined outcomes very broadly. The definitional model presented in the publication is depicted in Figure 2 . The model depicts three dimensions of outcomes: audience, type of outcome, and time. Figure 3 gives more detailed information on the "type of outcome" dimensions. Of interest to the FIPSE project are the economic and human characteristic outcomes; these Type 1 and Type 2 outcomes (both concrete and abstract individual outcomes) are commensurate with the FIPSE project focus on learner outcomes. The "time" dimension is detailed in Figure 4.

Figure 2

DIAGRAMMATIC OVERVIEW OF THE NCHEMS OUTCOMES STRUCTURE

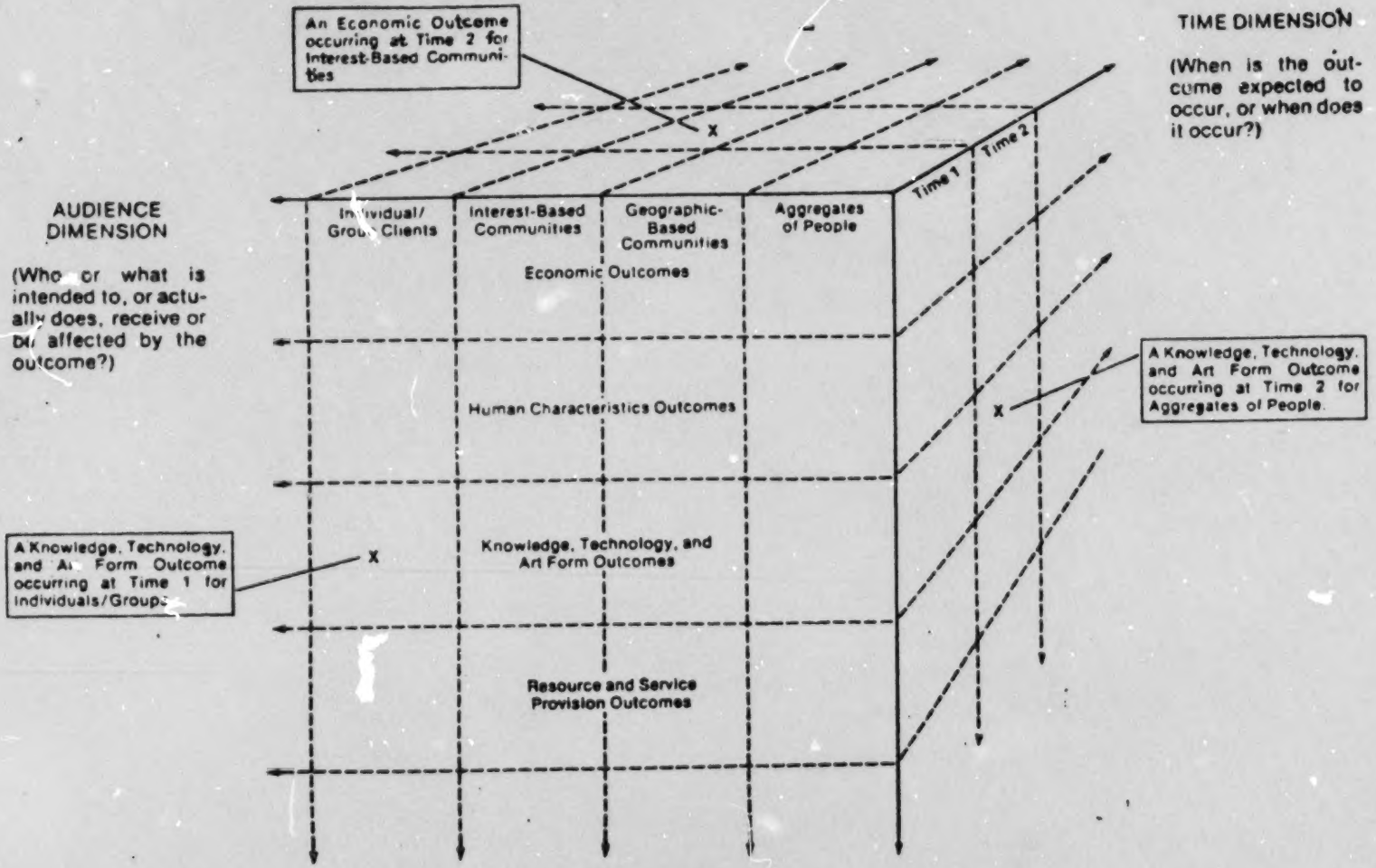
An Economic Outcome occurring at Time 2 for Interest-Based Communities
TIME DIMENSION
(When is the outcome expected to occur, or when does it occur?)
AUDIENCE DIMENSION
(Who or what is intended to, or actually does, receive or be affected by the outcome?)
Individual/ Group Clients
Interest-Based Communities
Geographic-Based Communities
Aggregates of People
Time 1
Time 2
Economic Outcomes
Human Characteristics Outcomes
Knowledge, Technology, and Art Form Outcomes
Resource and Service Provision Outcomes
A Knowledge, Technology, and Art Form Outcome occurring at Time 2 for Aggregates of People.
A Knowledge, Technology, and Art Form Outcome occurring at Time 1 for Individuals/Groups
TYPE OF OUTCOME DIMENSION
(What basic entity is, or is intended to be, maintained or changed?)

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Figure 3

CODED LISTING OF THE SECOND- AND THIRD-LEVEL SUBCATEGORIES FOR EACH FIRST-LEVEL CATEGORY OF THE TYPE-OF-OUTCOME DIMENSION[a]

Category Code Number	Entity Being Maintained or Changed
1000	*ECONOMIC OUTCOMES*
1100	Economic Access and Independence Outcomes
1110	Economic Access
1120	Economic Flexibility, Adaptability, and Security
1130	Income and Standard of Living
1200	Economic Resources and Costs
1210	Economic Costs and Efficiency
1220	Economic Resources (including employees)
1300	Economic Production
1310	Economic Productivity and Production
1320	Economic Services Provided
1400	Other Economic Outcomes
2000	*HUMAN CHARACTERISTIC OUTCOMES*
2100	Aspirations
2110	Desires, Aims, and Goals
2120	Dislikes, Likes, and Interests
2130	Motivation or Drive Level
2140	Other Aspirational Outcomes
2200	Competence and Skills
2210	Academic Skills
2220	Citizenship and Family Membership Skills
2230	Creativity Skills
2240	Expression and Communication Skills
2250	Intellectual Skills
2260	Interpersonal, Leadership, and Organizational Skills
2270	Occupational and Employability Skills
2280	Physical and Motor Skills
2290	Other Skill Outcomes
2300	Morale, Satisfaction, and Affective Characteristics
2310	Attitudes and Values
2320	Beliefs, Commitments, and Philosophy of Life
2330	Feelings and Emotions
2340	Mores, Customs, and Standards of Conduct
2350	Other Affective Outcomes
2400	Perceptual Characteristics
2410	Perceptual Awareness and Sensitivity
2420	Perception of Self
2430	Perception of Others
2440	Perception of Things
2450	Other Perceptual Outcomes
2500	Personality and Personal Coping Characteristics
2510	Adventurousness and Initiative
2520	Autonomy and Independence
2530	Dependability and Responsibility
2540	Dogmatic/Open-Minded, Authoritarian/Democratic
2550	Flexibility and Adaptability
2560	Habits
2570	Psychological Functioning
2580	Tolerance and Persistence
2590	Other Personality and Personal Coping Outcomes
2600	Physical and Physiological Characteristics
2610	Physical Fitness and Traits
2620	Physiological Health
2630	Other Physical or Physiological Outcomes
2700	Status, Recognition, and Certification
2710	Completion or Achievement Award
2720	Credit Recognition
2730	Image, Reputation, or Status
2740	Licensing and Certification
2750	Obtaining a Job or Admission to a Follow-up Program
2760	Power and/or Authority
2770	Job, School, or Life Success
2780	Other Status, Recognition, and Certification Outcomes
2800	Social Activities and Roles
2810	Adjustment to Retirement
2820	Affiliations
2830	Avocational and Social Activities and Roles
2840	Career and Vocational Activities and Roles
2850	Citizenship Activities and Roles
2860	Family Activities and Roles
2870	Friendships and Relationships
2880	Other Activity and Role Outcomes
2900	Other Human Characteristic Outcomes
3000	*KNOWLEDGE, TECHNOLOGY, AND ART FORM OUTCOMES*
3100	General Knowledge and Understanding
3110	Knowledge and Understanding of General Facts and Terminology
3120	Knowledge and Understanding of General Processes
3130	Knowledge and Understanding of General Theory
3140	Other General Knowledge and Understanding
3200	Specialized Knowledge and Understanding
3210	Knowledge and Understanding of Specialized Facts and Terminology
3220	Knowledge and Understanding of Specialized Processes
3230	Knowledge and Understanding of Specialized Theory
3240	Other Specialized Knowledge and Understanding
3300	Research and Scholarship
3310	Research and Scholarship Knowledge and Understanding
3320	Research and Scholarship Products
3400	Art Forms and Works
3410	Architecture
3420	Dance
3430	Debate and Oratory
3440	Drama
3450	Literature and Writing
3460	Music
3470	Painting, Drawing, and Photography
3480	Sculpture
3490	Other Fine Arts
3500	Other Knowledge, Technology, and Art Form Outcomes
4000	*RESOURCE AND SERVICE PROVISION OUTCOMES*
4100	Provision of Facilities and Events
4110	Provision of Facilities
4120	Provision or Sponsorship of Events
4200	Provision of Direct Services
4210	Teaching
4220	Advisory and Analytic Assistance
4230	Treatment, Care, and Referral Services
4240	Provision of Other Services
4300	Other Resource and Service Provision Outcomes
5000	*OTHER MAINTENANCE AND CHANGE OUTCOMES*
5100	Aesthetic-Cultural Activities, Traditions, and Conditions
5200	Organizational Format, Activity, and Operation
5300	Other Maintenance and Change

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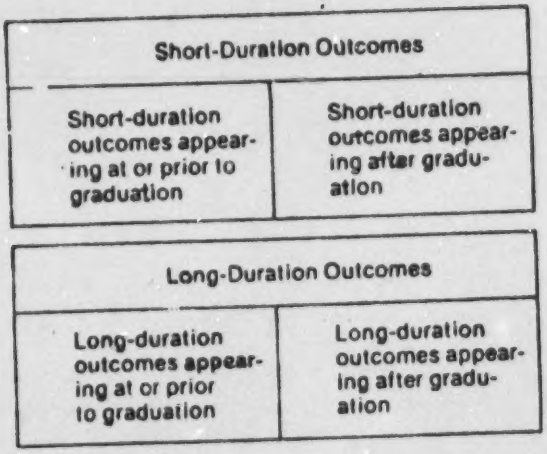
Figure 4


Short-Duration Outcomes
Short-duration outcomes appearing at or prior to graduation
Short-duration outcomes appearing after graduation
Long-Duration Outcomes
Long-duration outcomes appearing at or prior to graduation
Long-duration outcomes appearing after graduation

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An earlier NCHEMS outcome variables identification project was conducted by Micek and Wallhaus (1973). The outcomes they delineated, virtually all Type 1 and Type 2, are represented in Figure 5 . Although this list is smaller than the previous variables list, its simplicity and specific category headings make it easy to apply.

Another conceptual approach to outcomes in higher education is the formulation of institutional goals. Goals stand as the intended outcomes of higher education and cover all four types of outcomes: individual to social, concrete to abstract. Goal delineation is a central part of at least three kinds of institutional evaluation: effectiveness evaluation, efficiency evaluation, and accreditation. Of these three, only accreditation has not been mentioned previously. All academic accrediting agencies rely upon stated institutional goals to assess the appropriateness of institutional processes and the adequacy and use of institutional resources.

The central importance of goal delineation in the evaluation of institutions and their outcomes has generated a large body of literature on the goals of higher education. This literature rarely contains distinctions between two-year and four-year postsecondary education and generally treats higher education as a whole. For example, the Carnegie Commission (1973), devoted an entire volume to the discussion of the broad goals or purposes of higher education

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Figure 5

THE NCHEMS INVENTORY OF HIGHER EDUCATION

OUTCOME VARIABLES AND MEASURES*

1.0 Student Growth and Development

- 1.1.0 Knowledge and Skills Development
  - 1.1.1.00 Knowledge Development
    - 1.1.1.01 General Knowledge
    - 1.1.1.02 Specialized Knowledge
  - 1.1.2.00 Skills Development
    - 1.1.2.01 Application of Knowledge and Skills
    - 1.1.2.02 Critical Thinking and Reasoning Skills
    - 1.1.2.03 Creativity Skills
    - 1.1.2.04 Communication Skills
    - 1.1.2.05 Motor Skills
  - 1.1.3.00 Knowledge and Skills Attitudes, Values, and Beliefs
    - 1.1.3.01 Intellectual Disposition
- 1.2.0 Social Development
  - 1.2.1.00 Social Skills
    - 1.2.1.01 Interpersonal Participation
    - 1.2.1.02 Leadership
    - 1.2.1.03 Citizenship
  - 1.2.2.00 Social Attitudes, Values, and Beliefs
    - 1.2.2.01 Political
    - 1.2.2.02 Racial/Ethnic
    - 1.2.2.03 Personal Ethics
    - 1.2.2.04 Social Conscience
    - 1.2.2.05 Socioeconomic Aspirations
    - 1.2.2.06 Cultural Interest
- 1.3.0 Personal Development
  - 1.3.1.00 Student Health
    - 1.3.1.01 Physical Health
    - 1.3.1.02 Mental Health
  - 1.3.2.00 Student Personal Attitudes, Values, and Beliefs
    - 1.3.2.01 Religious and Spiritual
    - 1.3.2.02 Change/Stability
    - 1.3.2.03 Self-Concept

*Reprinted from Hicks and Wallhaus (1973, pp. 39-41).

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Figure 5 (Cont'd.)

1.4.0 Career Development

1.4.1.00 Career Preparation

1.4.1.01 Academic Preparation
1.4.1.02 Vocational Preparation

1.4.2.00 Career Attitudes, Values, and Beliefs

1.4.2.01 Achievement Orientation
1.4.2.02 Educational Aspirations
1.4.2.03 Educational Satisfaction
1.4.2.04 Vocational Aspirations

2.0 Development of New Knowledge and Art Forms

2.0.0.01 Discovery of New Knowledge

2.0.0.02 Interpretation and Application of New Knowledge

2.0.0.03 Reorganization of New Knowledge

3.0 Community Development and Service

3.1.0 Community Development

3.1.0.01 Community Educational Development

3.1.0.02 Faculty/Staff Educational Development

3.2.0 Community Service

3.2.0.01 Extension Services

3.2.0.02 Personal Services

3.2.0.03 Extramural Cultural and Recreational Services

3.2.0.04 Financial Impact on the Community

3.3.0 Longer Term Community Impacts

3.3.0.01 Social Impact

3.3.0.02 Economic Impact

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for the years 1975 to 2000. Five major purposes or "end objects" of higher education were specified and the processes that lead to these ends were spelled out. Figure 6 contains a summary of these goals and processes as abstracted by Lenning et al (1977).

One of the few efforts that deals directly with the goals of two-year institutions is the Educational Testing Service's Community College Goals Inventory (CCGI). The Inventory is designed to help community colleges define their educational goals, establish priority among those goals, and give direction to their present and future planning. The list of the CCGI Outcome Goals is presented in Figure 7. It can be seen that the list contains all four types of educational outcomes. It ranges from such concrete individual outcomes as vocational/technical training to abstract social outcomes such as humanism, altruism, and social criticism.

The final two concepts of outcomes to be discussed in this section also deal exclusively with the functions of two-year institutions. The first is the Florida Community/Junior College IRC Taxonomy of Community Service. Nickens (1976) reported that in 1974 the Interinstitutional Research Council (IRC) in Florida used a modification of the Delphi consensus-rendering technique to poll community college leaders. The object was to delineate exactly what constitutes community service for a community or junior col-

Figure 6

THE CARNEGIE COMMISSION'S PURPOSES OF HIGHER EDUCATION*

A. PROVIDE INDIVIDUAL STUDENTS WITH EDUCATION AND DEVELOPMENTAL GROWTH

1. Providing Broad Learning Experiences (General Education)
2. Providing Specialized Academic and Occupational Preparation
3. Assisting Academic Socialization
4. Providing Interesting and Stimulating Campus Environments
5. Providing Advisory and Counseling Support
6. Providing Time to Assess Options and Make Choices Before Having to Make Commitments

B. ADVANCE HUMAN CAPABILITY IN SOCIETY AT LARGE

1. Bringing About Research Advances and Developments
2. Providing Service to Off-Campus People and Organizations
3. Finding, Assessing, and Placing Talent
4. Training Skills
5. Providing Cultural Information and Opportunities

C. ASSIST THE REST OF SOCIETY TO PROVIDE EDUCATIONAL JUSTICE AND OPPORTUNITIES

1. Developing Adequate Numbers of Open-Access and Other Places Offering Postsecondary Education
2. Developing Special Programs, Including Those That Are Remedial and Cultural
3. Providing Essential Financial Support to Students

D. PROVIDE SUPPORT FOR PURE SCHOLARSHIP, ARTISTIC CREATIVITY, AND THE ENHANCEMENT OF CULTURAL HERITAGE

1. Providing Facilities
2. Providing Personnel
3. Providing a Favorable Climate

E. PROVIDE AND STIMULATE EVALUATION OF SOCIETY THAT AIMS FOR SELF-RENEWAL

1. Providing Freedom for Such Evaluation
2. Providing Opportunities for Such Evaluation
3. Providing Reasonable Rules of Conduct for Such Evaluation

*Abstracted from Carnegie Commission (1973, pp. 13-67).

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FIGURE 7

EDUCATIONAL TESTING SERVICE'S
LIST OF COMMUNITY COLLEGE GOALS

OUTCOME GOALS

General Education
Intellectual Orientation
Lifelong Learning
Cultural/Aesthetic Awareness
Personal Development
Humanism/Altruism
Vocational/Technical Preparation
Developmental/Remedial Preparation
Community Services
Social Criticism

PROCESS GOALS

Counseling and Advising
Student Services
Faculty/Staff Development
Intellectual Environment
Innovation
College Community
Freedom
Accessibility
Effective Management
Accountability

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lege. Results from this effort are presented in Figure 8. This concept is not concerned with individual outcomes (Type 1 and 2) but instead the focus is on the social outcomes provided by the community colleges (Type 3 and 4).

The second community-college-oriented concept is an input/outcome model advanced by Alfred and Ivens (1978). Their model, depicted in Figure 9, was constructed to indicate the relationship between community college inputs, programs, and outputs. In choosing examples of outputs for their model, the authors used primarily Type 1 learner outcomes. This emphasis, although incomplete, is appropriate. Most of the outcome research in community colleges focuses on these kinds of outcomes.

As the use and application of outcome data become more common, models that depict the methods by which these data can be applied to administrative decisions are developed. One such model has been constructed by the Learning and Retention Consortium (LARC) and appeared in the LARC Program Guide (LARC, 1982). The Consortium is a group of fifteen California community colleges that have jointly developed an Assessment/Placement System that is used to assist students in developing the college program that best suits their needs, basing the program choices in part on the students' remedial program outcomes. Appendix A contains two models that represent the assessment/placement system of the Consortium.

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Figure 8

THE FLORIDA COMMUNITY/JUNIOR COLLEGE IRC TAXONOMY

FOR COMMUNITY SERVICES*

1.00 Instructional Services

- 1.10 General-Cultural Services
  - 1.11 Community and Civic Affairs
  - 1.12 Family Life
  - 1.13 Leisure Time and Recreational Activities
  - 1.14 Personal Health
  - 1.15 Cultural Heritage and Enrichment
- 1.20 Occupational Services
  - 1.21 Development of General Attitudes and Skills for a Career
  - 1.22 Development of Specific Attitudes and Skills for a Career

2.00 Noninstructional Services

- 2.10 Coordination
  - 2.11 Individuals
  - 2.12 Groups
  - 2.13 Agencies
- 2.20 Consultation
  - 2.21 Consultation with Individuals
  - 2.22 Consultation with Groups
  - 2.23 Consultation with Agencies
- 2.30 Research and Development

3.00 Facility Services

*Abstracted from Nickens (1976, pp. 13-18).

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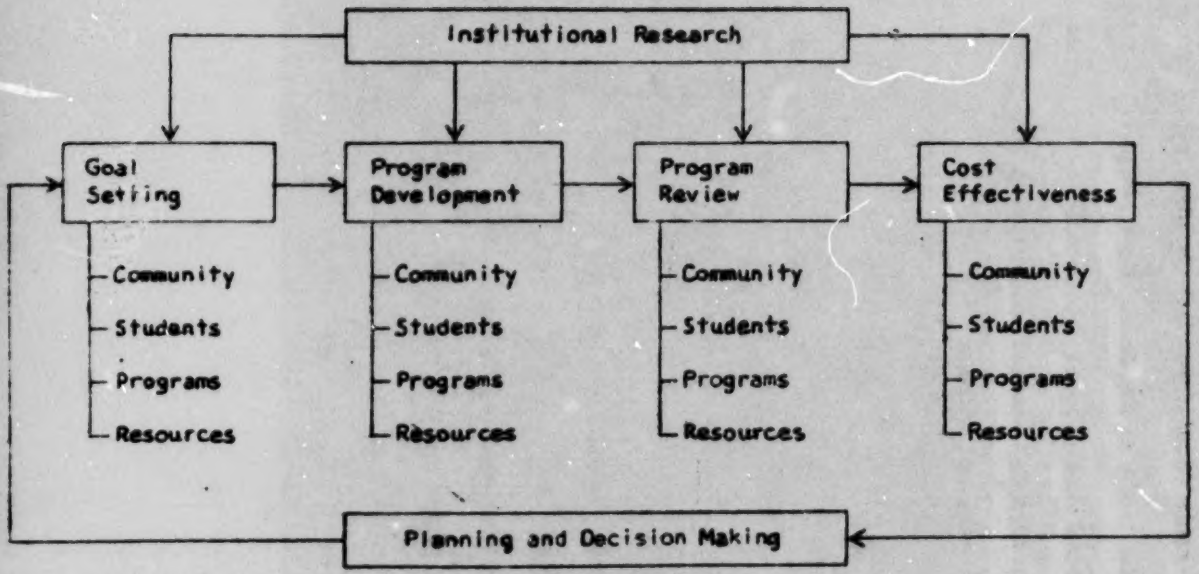
Figure 9



Conceptual Model for Institutional Research

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The next section of this paper examines some of the current literature on the four types of community college outcomes. In the cases where research on outcomes is discussed the review will not be concerned with the actual findings but instead will examine the current approaches to documenting outcomes.

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Section II - A Review of Community College Outcome Literature.

Introduction

Outcome studies in community colleges most often examine the extent to which institutions are carrying out their stated missions and functions. This implies that outcome research focuses primarily on the intended outcomes of institutions. Such studies have become increasingly important over the last ten years and this importance can certainly be related to the increasing scrutiny of the community colleges' role in society.

The unique characteristics of community colleges make the measurement of outcomes more difficult than similar research in senior institutions. Community colleges have comprehensive educational programs including transfer education, vocational education, continuing education, remedial education, and community services. Outcome measures which may be appropriate for one portion of the educational program may be completely inappropriate for others. Even the comprehensiveness of community colleges varies greatly because of the various program mixes which are designed to meet local needs. Obviously, the needs of a small, isolated rural community differ substantially from those of a large inner city community. The characteristics of the enrolled students in such colleges also varies substantually, partic-

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ularly in the proportions of minority and low socioeconomic students. In addition to the wide diversity of students who enroll in community colleges as a result of the open door policy, the community colleges have also attracted several groups of students including the elderly, the handicapped, and re-entry students, both male and female. A further complication is the mix of part and full-time students. All of this diversity in educational programs and student and community characteristics must be taken into consideration when outcomes are to be defined and measured.

The role of diverse service that has been adopted by community colleges is summarized in the state priorities of the California Community Colleges' Board of Governors. These priorities emphasize access, programs, and services as major concerns.

Open access to higher education has been one of the long-standing ideals of community colleges. The California Board of Governors has articulated the "responsibility to provide programs that ensure equal access to postsecondary education for all adults without regard to race, ethnic or national origin, sex, age, disability, or prior educational status." As an outcome, the ideal of access for the population as a whole is guaranteed by law and can be considered an abstract social benefit.

Concrete benefits to individuals are emphasized by commitments to programs and services. Six programs and

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services are listed in the Board's statement and five of them offer specific outcomes for individuals: transfer education, preparation for employment, student support services, remediation and continuing and community education. These learner-oriented offerings have been the mainstay of community colleges and they mirror the current priorities of community colleges in general (Cross, 1981). Because of this common emphasis on benefits to individuals, most outcome studies focus on Type 1 outcomes.

Type 1 - Concrete Learner Outcomes

Three kinds of Type 1 outcomes will be reviewed here. They are the transfer of students, the degree attainment of community college students, and the employment and income of community college graduates.

The Transfer of Students

The problem of differentiating and typing transfer students in order to understand transfer outcomes was taken up by Willingham. Reinhart (1977) summarized Willingham's classification of transfers:

> 1. Articulated Vertical Transfer. Students moving directly from parallel, articulated programs in a two-year college into the upper division of the program in a four-year college.
>
> 1a. Articulated Vertical Transfer in Specialized Career Fields. This is a specialized case of Item 1, applying to students whose associated degrees, by plan, are both entries to technical employment and

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specialized degrees required for entry to an upper-division program.

2. Nontraditional Transfer. Two- and four-year college transfers who do not follow the usual patterns, including adults who have been out of college for some years and those involving external or experiential studies and other situations in which the prior studies may not be valid for assessment purposes.

3. Reverse Transfer. Students transferring from a four-year to a two-year college.

4. Open Door Transfer. Transfers from one two-year college to another for a variety of reasons.

5. Double Reverse Transfer. Those reverse transfers who return to a four-year college. These individuals may be in normal transfer or in occupational programs at the two-year college, and may change their field in the process.

6. Vocational to Changed Major Transfer. These are individuals transferring from a career program in a two-year college to related but different baccalaureate programs in a four-year college.

7. Upside-Down Curriculum Transfer. This classification includes individuals that transfer into "upside-down" degree programs that exist in some four-year colleges. Sometimes involving a degree in "General Studies," these degrees are structured to provide mostly general education courses, management studies, or other general studies that come after technical training in two-year colleges. (pages 39-40)

These complexities prompted Reinhart to conclude: "Research results and policy assumptions are different for the several types of transfer. Therefore, assessment measures and criteria recommendations must be based on the specific type of transfer."

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This conclusion of Reinhart's was echoed by Renkiewicz et al (1982) in a student outcome study that sampled over 11,000 students from California's Los Rios Community College District. The transfer students examined in the study were classified as reverse and lateral transfers, with subclassifications of completers and non-completers.

With the exception of several California Postsecondary Education Commission reports authored by Dorthy Knoell, (California Postsecondary Education Commission; 1976, 1979, 1982), virtually all studies of community college transfers depict outcomes dealing with Reinhart's first kind of transfer student- the articulated vertical transfer. For example, in a study of the California Community Colleges, Kissler (1980) reported on the number and condition of students moving from a two-year to a four-year institution. While this focus on the upward movement of students is appropriate, given the mission of many two-year institutions to prepare for baccalaureate-granting schools, the picture of the community college transfer function remains incomplete without an accommodation of the several opportunities for transfer that community colleges provide. A broad redefinition of the transfer function could assist researchers in their attempts to depict the wide range of transfer outcomes of community colleges.

The intricacies of accurately typing transfer students and the variability of the conditions that affect transfers

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make outcome assessment in this area a challenging undertaking. Institutions conducting self-studies that examine the relationship between local conditions and the transfer function will be pursuing important information. Holmstrom and Bisconti (1974), in their study on transfers for the American Council on Education, have stated that common student background factors, "about which we know a great deal, are less important determinants (of successful transfer) than experiences at the junior college, about which we know considerably less."

Degree Attainment by Community College Students

Outcome studies may examine the success of students in the attainment of a degree. As will be discussed later, the changing community college population makes this research problematic. It has even been claimed that many community college students are "cooled out", eventually being turned away from degree attainment and any further advanced study (Karabel, 1972). However, when undertaken, degree-attainment research is most often local institutional research or statistical analysis of national data. Most local research, usually institutional self-studies, includes information on how many certificates and associate degrees have been granted in a given period of time. Research with a national scope, more often than not, focuses on the success of community college transfer students in attaining a bachelor's

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degree.

The national studies are generally the most sophisticated and most widely distributed. These studies make use of databases created from large-scale longitudinal research on students. The two common sources for these data are the American Council on Education's follow-up studies and the National Longitudinal Study of the High School Class of 1972 (NLS 72). Various researchers have used longitudinal databases differently when seeking to compare the degree attainment of transfer and native students. For example, Folger, Astin, and Bayer (1970) used simple statistical controls such as SES and student ability when comparing the degree attainment rate of the two groups. Trent and Medsker (1968) and Astin (1972) used slightly more sophisticated categories when they controlled for SES, ability, and aspiration. These studies and their statistical methods, although more than ten years old, represent the state-of-the-art in research on bachelor's degree attainment rates.

Local studies that depict associate degree attainment rates use simple descriptive statistics in their tallies. Local researchers may feel the need for student attribute controls that help explain why some students attain degrees and others do not. Until recently, attribute variables that accommodate the idiosyncracies of the changing community college population have not existed. Some changes occurred when Sheldon (1981) created attribute categories that were

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the direct product of interviewing and assessing community college students. His "student prototypes" are categories that type students according to how they are expected to use the community colleges. Eighteen categories or prototypes are specified; seven prototypes are used for typing transfer students, five are used for typing vocational students, and six are used for typing "special interest" students. The prototypes are listed here:

- Transfer students: 1. full-time transfer 2. part-time transfer 3. undisciplined transfer 4. technical transfer 5. intercollegiate athlete 6. financial aid seeker 7. expediter

- Vocational students: 1. Program completer 2. job seeker 3. job upgrader 4. career changer 5. license maintainer

- Special interest students: 1. leisure skills student 2. education seeker 3. art and culture student 4. explorer/experimenter 5. basic skills student 6. lateral transfer.

While the usefulness of these new categories have yet to be fully explored, they may help underscore the complexities of research on degree attainment.

Studies of the degree-granting function of community colleges have been important because of the tendency to equate degree attainment with achievement and persistence in school. However, the difficulty of equating degree attainment with academic achievement or persistence is highlighted

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by the diverse aspirations of these different kinds of students. For example, the vocational job seekers are described as those who "attend college only long enough to learn vocational skills that will permit them to attain a semi-skilled to highly-skilled job." These students, and many others in like categories, may persist sufficiently to achieve their own ends without degree attainment. Even the most solidly academic student, the full-time transfer, may very well view degree attainment as superfluous to his or her needs.

The next step in the assessment of degree attainment, as well as other outcomes, must accomodate this more thorough understanding of the community college population. In the absence of this information, the use of degree attainment as an outcome measure will continue to be problematic.

Employment and Income

In the last decade community colleges have increased their emphasis on providing vocational/occupational opportunities for their students. This increased emphasis has drawn the attention of those interested in community college outcomes. A large number of local studies and several national research efforts have focussed on job attainment and income as output measures. While the findings of these studies differ, the methods- and the problems surrounding the methods- remain fairly consistent.

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In local and regional efforts, follow-up studies have become the usual method for assessing the outcomes of employment and income. The Southern Regional Education Board reported that, in 1980, 98% of the 84 institutions they surveyed were planning follow-up studies. Also, the number of studies conducted had gone from zero in 1976 to 54 in 1979 (Southern Regional Education Board, 1981). Two reasons for undertaking these studies were cited most often- they were intended to assess:

> 1. "College graduates employed, unemployed, employed part-time, employed in jobs related to their majors, employed in-state" and
>
> 2. "Salaries of jobs, career potential of jobs, type of employer, (and) how the job was found." (page 3)

A typical follow-up study that addresses several of these questions was conducted and issued by the Maryland State Board for Community Colleges (1981). The instrument used in the study is contained in Appendix B.

The principal problem of the study is summed up in a sentence in the summary section of the Maryland study: "The response rate among those who received the questionnaire was 47 percent".

The problem of bias from low response rates was common in virtually all of the follow-up studies examined for this review. The method of dealing with the problem varied considerably, however. In the most thorough studies, samples

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of non-respondents were taken and telephone follow-ups were used to determine if non-respondents differed from respondents on key variables. This kind of thoroughness was uncommon and, generally, local researchers did not attend to the problem of low response rates. Instead, they drew limited conclusions from the information that was originally received.

A second problem with local follow-up studies is finding meaning in the results. This problem is rooted in the fact that local studies are individual in format and content. This has two effects: first, the studies cannot be combined into an aggregated picture of community college outcomes; second, in the absence of aggregate information there is no external norm against which an institution can measure its performance. For example, a study may indicate that a specific percentage of vocational students are finding work in their chosen area. But, without some standard norm for student placement, the outcome statistic itself is not necessarily meaningful. Finding meaning in follow-up study data is, to some extent, dependent on knowing how well comparable institutions are performing. The development of some standardization for local follow-up studies may represent the next important step in local community college outcome evaluation.

A third issue confronts local institutions wanting to use follow-up studies for the assessment of employment and

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income: will the benefits of the study justify the costs? Cost/benefit is important to consider in light of the problems of validity with low response rates and unclear meaning of the data. The expense of follow-up studies, particularly the more complicated longitudinal designs, may be difficult to justify.

Large-scale national studies of community colleges' effects on employment and income are less common but generally more widely known. The most recent of these was released by the Brookings Institution (Breneman and Nelson, 1981). Originally intended to be an econometric study of community college financing, the authors found that, within the community college's evolving environment, "questions of finance will become increasingly entangled in questions of institutional mission and purpose..." Because of this, the authors direct attention to the assessment of the outcomes implicit in institutional purposes, especially those outcomes related to employment and income.

For their analysis the authors utilized data from the National Study of the High School Class of 1972 (NLS 72). The authors explain the importance of large-scale national data in the assessment of outcomes. They claim that such information is more representative of national characteristics than any local follow-up study could be. Furthermore, the database contains personal characteristics such as family income, age, race, and sex that can be utilized in the

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analysis. They state: "Although the national studies and the data on which they are based are not perfect, they are more suited to answering the questions that we see as most important..."

In addressing questions about employment and income, the authors used multivariate linear regression to ascertain the relationship between community college attendance and job and wage outcomes. Using 47 predictor variables they were able to account for between 3.1 and 24.0 of the variation in the "labor market outcome" dependent variables (i.e. wages, occupational status, and weeks employed).

It seems apparent that a major limitation of the use of national databases and multivariate techniques is that they leave a large amount of variation in outcomes unexplained. Furthermore, they provide no information on local conditions that could guide administrators in the decision-making process. The large amount of variance left accounted for in such large scale studies may reinforce the tendency of community college researchers to rely on small-scale follow-up studies. (For a more technical discussion of the problems of multivariate analysis in college output studies, see Astin [1977], pages 263-266).

Another study investigated the outcomes of employment and income using inter-regional data. Wilms (1974) undertook a survey project to compare the effectiveness of public and private vocational training. His method, which has been

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widely criticized, was to follow up on graduates of two-year public and private programs and document their success in finding the kind of work they were trained for. In this effort, as in the Breneman and Nelson study, emphasis was placed on contrasting the "labor market outcomes" of public community colleges with the outcomes of a comparable group. Breneman and Nelson chose high school graduates without community college training as the comparison group; Wilms chose to compare graduates of proprietary vocational programs with community college vocational graduates. This emphasis on comparative analysis makes a study more complex, particularly for a local researcher with limited access to non-community college data. However, without some kind of comparison, research findings do little more than describe program effects. Such findings do not have the power to demonstrate the value of programs versus other educational or work alternatives.

In a different attempt to examine employment outcomes, the National Center for Educational Statistics has created the Vocational Education Data System (VEDS). In this system, community colleges are required to report the results of follow-up on the employment status of graduated vocational education students. Colleges report low returns of information from their former students, usually below 30%. It is questionable whether nationally aggregated data will provide valid and useful information. Required follow-up of

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Table 3

Classification of Student Outcomes
by Type of Outcome and Type of Data

Data	Outcome: Affective	Outcome: Cognitive
Psychological	Self-concept Values Attitudes Beliefs Drive for Achievement Satisfaction with College	Knowledge Critical Thinking Ability Basic Skills Special Aptitudes Academic Achievement
Behavioral	Personal Habits Avocations Mental Health Citizenship Interpersonal Relations	Career Development Level of Educational Attainment Vocational Achievements: Level of Responsibility Income Awards or Special Recognition

Source: Astin, Panos, and Creager (1967, p. 16).

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employers also yielded very low returns and has now been discontinued.

In general, the problems that exist in the assessment of employment and income are the problems of survey and longitudinal research as a whole. Low response rates, missing data, sampling difficulties, and , in the case of local studies, the absence of comparisons between groups all work to limit the state-of-the-art.

Type 2 Outcomes

Abstract learner outcomes, or Type 2 outcomes, have been characterized by Astin (1977) as being cognitive or affective. The cognitive outcomes of postsecondary education include the development of mental abilities such as reasoning and logic. Affective outcomes include the development of values, attitudes, morals, aspirations and self-concept. The assessment of these outcomes can be approached using either psychological information which depicts internal traits, or by using information about observed behaviors. With these categories, Astin, Panos, and Creger (1967) classified outcomes as depicted in Table 3.

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Cognitive and affective changes in postsecondary students were also of interest to Feldman and Newcomb (1969). They reviewed and reported on more than 1500 empirical studies, most of which were involved with documenting the Type 2 outcomes of colleges and universities. In Volume 1 of their work the authors delineate two of the methodological problems that continue to delimit the state-of-the-art of Type 2 outcome studies: the first problem is the difficulty of controlling for student inputs when measuring outcomes; the second problem is the difficulty of inferring changes in the psychology of the student from scores on instruments. A closely related problem that the authors do not directly address is the problem of controlling for normal personal growth that is not a product of the education institution.

The first problem of controlling for input when assessing output is a central concern of any attempt to measure what educational or personal values are added by an institution. In order for value-added to be assessed, all of the relevant input variables must be identified and accounted for. The difficulties of doing this with psychological variables may preclude all but the simplest Type 2 research. Also, the interaction effects that occur between the individual inputs and the environment may undermine the validity of the outcome. For example, a large sprawling suburban community college environment may have psychological effects on specific individuals that an urban environment might not.

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As these interaction effects become subtler and increase in number, the possibility of controlling for them and drawing any generalizable conclusions about postsecondary value-added effects becomes more difficult.

The second problem is an instance of the larger issue of construct validity in psychological measurement. In the Feldman and Newcomb example, the process of maturation is ambiguous enough to disallow the kind of definition necessary for precise and repeatable testing. For example, in responding to questions about values, freshmen may answer with certainty and seniors may answer tentatively. Does this change indicate that the seniors are becoming less rigid and more thoughtful, or does it indicate a growing uncertainty in the older students? Researchers who want to assess maturation and other psychological development must be careful to address this issue of construct validity; the instruments they choose must provide data valid enough to supply a basis for conclusions about the trait in question.

The third problem is a broader issue that actually subsumes the previous two problems. It is the problem of how to demonstrate cause and effect in documenting educational outcomes. This issue is especially important in the consideration of Type 2 outcomes because of the ambiguities that surround their measurement. Pace (1979) considers the question in the following way:

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> "When researchers write about the impact of college on students, they are asking questions about cause and effect. Is the particular behavior or condition they observe really caused by the college? Could it be caused by or attributed to some other event or circumstance--to family background, for example, or I.Q., or simply to the normal process of growing up? We know that students in the twelfth grade are taller and heavier than students in the eighth grade; but we also know that this gain in height and weight was not caused by going to high school. That, of course, is an obvious example of conditions which are associated without having any cause and effect relationship. This association is what statisticians warn of when they remind us that correlation does not prove causation...If one asks the question 'What?' rather than 'Why?, there are a lot of simple answers--clear, straightforward, and consistent over time. Do students learn anything in college? Yes. Do they themselves believe that they have made progress toward such ends as critical thinking, acquiring a body of facts and knowledge of a special field, personal and social development, tolerance, broadened literary acquaintance, and so on? Yes." (pages 5-6)

This attitude about the assessment of outcomes in general and Type 2 outcomes in particular should encourage local community college researchers. Straightforward and careful description of Type 2 outcomes can, when compared with non-student data, help build a body of information useful for documenting the psychological impacts that community colleges have on students.

Type 3 and Type 4 Outcomes

While the FIPSE project is specifically concerned with assessing learner outcomes, it is worth briefly noting that several kinds of community colleges outputs can be called social outcomes. These are the concrete and abstract benefits that accrue to the local community and to society at

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large.

Type 3 outcomes are those specific and concrete effects that community colleges have on the local community. Such effects can be economic or service-related. Economic outcomes include local taxes paid, local goods and services purchased, construction undertaken, workers trained, and payroll administered. Service-related outcomes include the provision of facilities for social, cultural, and recreational programs. These outcomes and methods for their assessment are detailed in Conducting Community Impact Studies, A Handbook for Community Colleges (Armijo, Micek, and Cooper, 1978). The Handbook offers advice on how community impact data can be gathered using internal sources such as institutional records and using external sources such as citizen's groups, employers, civic leaders, and social agency leaders. It also offers the best current examples of instruments that can be used to survey external constituencies.

Type 4 outcomes are the abstract benefits that community colleges offer to society as a whole. Such offerings include opportunity through open access to higher education, egalitarianism increased cultural richness, and social innovation. These outcomes are virtually impossible to measure and are difficult to document in any way other than through general speculation. Because of this, these intended benefits of education have been held more as ideals rather than

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having been assessed as outcomes.

Although there are no studies aimed at trying to measure these intended benefits, a study was undertaken to determine whether or not these ideals are held by those who are associated with the community colleges. The Educational Testing Service (ETS) field-tested its Community College Goals Inventory (CCGI) in early 1979 by administering it to a diverse group of over 4,300 community college students, faculty and administrators. The CCGI format prompts respondents to rank order twenty potential goals as to how important any one goal is and how important it should be within the community colleges. The inventory contains five goals which, if achieved, could be considered Type 4 outcomes: humanism/altruism, social criticism, innovation, freedom, and accessibility.

When Cross (1981) analyzed the CCGI field-test data, the result was, in part, an assessment of current commitment to Type 4 outcomes. The thesis that emerged from the analysis was as follows:

> "...the late 1970's and early 1980's represent a plateau between two periods of high energy and a sense of mission in the community colleges. The old ideals that sparked enthusiasm and the sense of common purpose in the community colleges have receded, and new ideals have not yet merged to take their place." (page 113)

This thesis was grounded in data derived from the only standardized instrument that measures commitment to Type 4

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outcomes. Although a substantial body of sophisticated analytical and conjectural literature has addressed these kinds of goals and their attainment (eg Pincus, 1980), the state-of-the-art in the measurement of Type 4 outcomes has yet to move beyond this rough rank-ordering of goals. Until some "psychometry of society" which tests for social health and development is created, the assessment of Type 4 outcomes must rely on rough measures and analytic conjectures.

Section III - Some Current Projects Utilizing Outcome Measures

Introduction

The assesement of postsecondary outcomes has been a topic that has received a great deal of attention in the last twelve years. One of the first forums in which this topic was explored was a 1970 seminar at U.C. Berkeley's Center for Research and Development in Higher Education. During the proceedings, Fredrick Balderston, a Professor of Business Administration at Berkeley and a writer on issues in higher education, spoke about the need to develop strategies for outcome assessment:

> "We have bumped hard into the questions of outputs and their measurement because, among other things, we are seeking now to link the resources used to the results achieved--in other words, to link inputs with outputs. It turns out that in the long history of concern about the processes and activities of education, we have achieved a very imperfect grasp of the nature of its results. Now we are having to tackle the problems of output definition under

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> forced draft...The job we have to do is urgent, important, and controversial. If we had time, we might do well to sympathize with ourselves for taking it on." (Balderston, 1970)

Since that seminar, efforts to perfect the grasp on the nature of educational outcomes have continued. From 1970 to 1976 the majority of the effort was in the definition and conceptualization of the general area. Research, both national and local, has continued as well. Although Pace (1979) has shown that studies examining outcomes have emerged for at least half a century, most of the local and national research on community college outcomes and their causes has been released only since the mid-1970's.

The concern about postsecondary outcomes in general continues to evolve in the form of several extant projects. Some of these projects are designed to make use of outcomes in the management of higher education while others represent new developments in the assessment of learner outcomes.

Outcomes and Management

Linking outcomes to management decisions is the focus for a project funded by the W.K. Kellogg Foundation and administered by the National Center for Higher Education Management Systems (NCHEMS). The project coordinates seven public institutions, each of which is gathering outcome information for use in various administrative decisions.

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While each institution began its own individual program in January, 1982, there are three basic approaches being developed. The first approach emphasizes the use of outcomes for strategic planning; the second approach utilizes outcomes in the academic program review process; the third approach involves assessing outcomes of student services. As a result of these efforts, NCHEMS anticipates being able to disseminate administrative models and research findings to other institutions, to state coordinating and governing boards, and to accrediting agencies.

Another management-oriented outcomes project is the performance funding program of the Tennessee Higher Education Commission. This program encourages outcome evaluation by offering institutions the opportunity to win points that are redeemable in the form of budget increases. Points are awarded if the institution is simply willing to undertake specific outcome assessments; larger point awards are available if the institution provides evidence that they have improved their own performance on a given variable or are substantially superior to comparable institutions on a given variable.

The five variables that can be assessed to win funding points are: 1. Program accreditation 2. Program field evaluation 3. Educational outcomes 4. Instructional improvements, and 5. Planning for instructional improvements

Three of these five variables directly involve the use of

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learner outcomes. These three are the program field evaluation, the educational outcomes, and instructional improvements.

The program field evaluation variable is assessed by sampling graduates of a program and testing them to determine their level of program- specific performance. If the individuals tested demonstrate knowledge exceeding that of graduates of similar programs at comparable institutions, or if knowledge of program graduates has improved since a previous assessment, the institution is eligible for points. The test used to determine performance may be an externally validated instrument or it may be an instrument developed by the institution itself.

The assessment of educational outcomes is undertaken by measuring students' gains in general education or by documenting the job placement rates of technical institute graduates. Institutions may only use the ACT-COMP objective or composite measures for the assessment of general education gains. Job placement rates must be documented by follow-up studies that survey the employment status of technical program graduates within 90 days of graduation.

Instructional improvements that are based on outcome information can also be used as evidence to win funding points for institutions. In this case the outcome information consists of opinions surveyed from formerly enrolled students or community members and employers. The

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institution is eligible for points when it indicates how the survey information is being used to make specific instructional improvements.

Program administrators state that the institutions have become increasingly supportive of performance measures in the distribution of state appropriations. However, both program and institution administrators have voiced concern over the rising costs involved in outcome evaluation. If the program is to be successful in the long run there must be assurance that the process will generate significantly more money than it costs.

Only certain segments of the NCHEMS/Kellogg program and the Tennessee project deal specifically with community college concerns. One outcomes project that is entirely a community college undertaking is the Program Performance Profile being developed by the Office of Institutional Research of the Nassau Community College in Garden City, New York. The Profile is an outcomes-oriented look at how degree-granting programs are performing. Descriptive statistics are gathered on ten criterion variables or "indicators." The first two indicators are actually student input variables involving data on new enrollments in programs and on the academic potential of program students. The remaining eight indicators depict such things as academic achievement, persistence, and satisfaction for current program students and, in some instances, for program graduates. These data

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provide the basis for the internal review of academic programs, the goal of which is to "enable academic departments to modify and improve their curricular offerings in an informed manner."

Efforts to design and implement standardized tests of learner outcomes are also continuing to evolve. Learner outcomes have traditionally been assessed through the use of such standardized measures as the Educational Testing Service's Undergraduate Assessment Program (UAP) or the College Level Examination Program (CLEP). These measures were designed primarily to determine a student's mastery of specific knowledge in given areas. More recent developments in learner outcome assessment have emphasized more than just content mastery. For example, in 1976 the American College Testing Program (ACT) organized the College Outcome Measures Project (COMP) with the intent of developing measures that assess students' abilities to use knowledge in out-of-class contexts.

The College Outcome Measures Project

There are three components of the COMP battery. The first two are the Composite Examination and the Objective Test. Both aim at examining six areas of general knowledge and analysis, three of which are called "process areas" and three of which are called "content areas." The processes evaluated are communication, problem solving, and clarification of values. The content areas of interest are the arts,

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science and technology, and functioning within social institutions. Even in the content areas the emphasis is on the ability to mobilize factual knowledge in order to address adult-world situation and problems. The test situations are created by using advertisements, art prints, television documentaries, newscasts, and other stimuli.

In the format of the Composite Examination, student response to these stimuli takes the form of short written answers, longer expository writing, answering multiple choice questions, and giving oral responses which are audio-taped. The exam can be administered to groups and requires about four hours to complete. The large amount of qualitative information gathered by the exam demands considerable time for its evaluation. It is estimated that four trained faculty members can evaluate a student's responses in about 50 minutes. The Objective Test is available when the institution does not wish to commit the resources required for the Composite Examination. It provides the same process and content assessment but accomplishes it by allowing the student to respond to the test stimuli by answering multiple choice questions. The Objective Test is something of a short- hand version of the Composite Examination that does not gather the richer qualitative data of the Composite Examination, but is simple and inexpensive to score. The third component of the COMP battery is the Activity Inventory. The Inventory allows students to report

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on their own involvement in out-of-class activities. The format consists of multiple-choice items in COMP's six outcome areas. Students select among responses that indicate low to high levels of participation in activities within those areas. By documenting the student's life experiences, the inventory is designed to round out the profile provided by the other COMP measures.

These fresh approaches to the problems of outcome measurement and their applications indicate that interest in outcome evaluation is alive and well.

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Section IV - Summary

Drawing together the state-of-the-art of outcome evaluation in higher education is an elusive task. This is true mainly because attempts to assess outcomes have been based on a wide variety of methods and analysis. The state-of-the-art has yet to emerge as any one cohesive field of investigation.

The absence of a single state or method of outcome evaluation is easy to understand. This paper has pointed out that different concepts of outcomes and types of outcomes abound. The assessment of outcomes also varies greatly depending on the scope of the research- whether it is conducted at a local, regional, or national level.

These different dimensions combine in ways that demand different methodological approaches. For example, a value-added concept of a Type 2 outcome assessed at the national level requires a very different approach than a simple output description of degrees produced at the local level. In the value-added approach, both entry and exit data must be gathered in order to control for the value the student brings to the institution. If the outcome of interest is an affective Type 2 variable, methodological considerations of psychological assessment enter the picture. Finally, if the data are from a nationwide study, it is usual that sophisticated procedures, perhaps linear regression, will be util-

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ized to determine whether or not statistically significant changes in the controlled psychological variable have occurred. This kind of outcome evaluation is obviously quite different than the local tabulations of degrees and certificates awarded by an institution.

This example of two widely differing outcome evaluations is offered to illustrate the fact that outcome evaluation is not near to being a single definable entity. The state-of-the-art varies greatly depending on the question at hand. A brief review of the types of outcomes will help to summarize the various approaches to outcome evaluation.

Type 1 outcomes, when assessed at the local level, are usually approached with methods that rely on descriptive statistics or limited survey research. Transfer and terminal degree students are counted, and vocational students are surveyed to determent their success of finding work. In regional and national Type 1 outcome studies, performance comparisons between transfer and native students are made; large-scale follow-up studies are conducted to determine the relative worth of community college vocational training; or information form existing national survey databases is manipulated statistically to determine whether or not students have benefited materially form their community college training. Regional and national studies are usually constructed to compare community college students to other students or to non-students. Local studies of Type 1 outcomes

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typically describe outcomes without including a comparison group.

Type 2 outcome studies are more diverse in their methods than any other type. The assessment of student attitudes may be approached using a simple Likert scale. On the other extreme, subtle and sophisticated experimental designs may be used to test students for changes in abstract reasoning, self-concept, or for other psychological changes. As in the case of Type 1 studies, the research methodology may or may not control for input variables, and may or may not include comparison groups. The diversity of the cognitive and affective variables that can be researched as outcomes necessarily makes the state-of-the-art a diffuse entity.

Type 3 outcomes, most commonly the local economic and community service impacts of an institution, are virtually always assessed using institutional records and survey research methods. As has been discussed, the limitations to these studies are the limits of survey research in general. The most thorough studies sample and survey important community subpopulations such as business and industry, the retired, and local government. These studies also include follow-up on non-respondents conducted by trained personnel. The least thorough studies are those that are based on a general community mailing and simply report the obtained responses.

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Type 4 outcomes are the abstract social benefits that community colleges offer. Because these outcome are not amenable to empirical research, the state-of-the-art of their assessment is not a matter of method. Rather, it is a matter of analytical insight grounded in institutional and social research. For example, writers may attempt to assess the community colleges' role in promoting social mobility and economic egalitarianism. For this, they must draw on the large body of research that depicts the employment and income picture for community college graduates as well as consider the basic employment and mobility picture of the country as a whole. In the absence of good aggregated research, the understanding of Type 4 outcomes cannot be advanced. In this way, the assessment of Type 4 outcomes is dependent on the research of other impacts of education.

On the whole, outcome evaluation will remain a diverse undertaking. The lastest attempts to incorporate outcome data into institutional planning indicate that interest in outcomes is continuing to grow and continuing to diversify. As institutions face greater accountability in challenging financial times, outcome assessment will become more important and, perhaps, even more eclectic in its methods.

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COMMUNITY COLLEGE OUTCOMES

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TYPE 4

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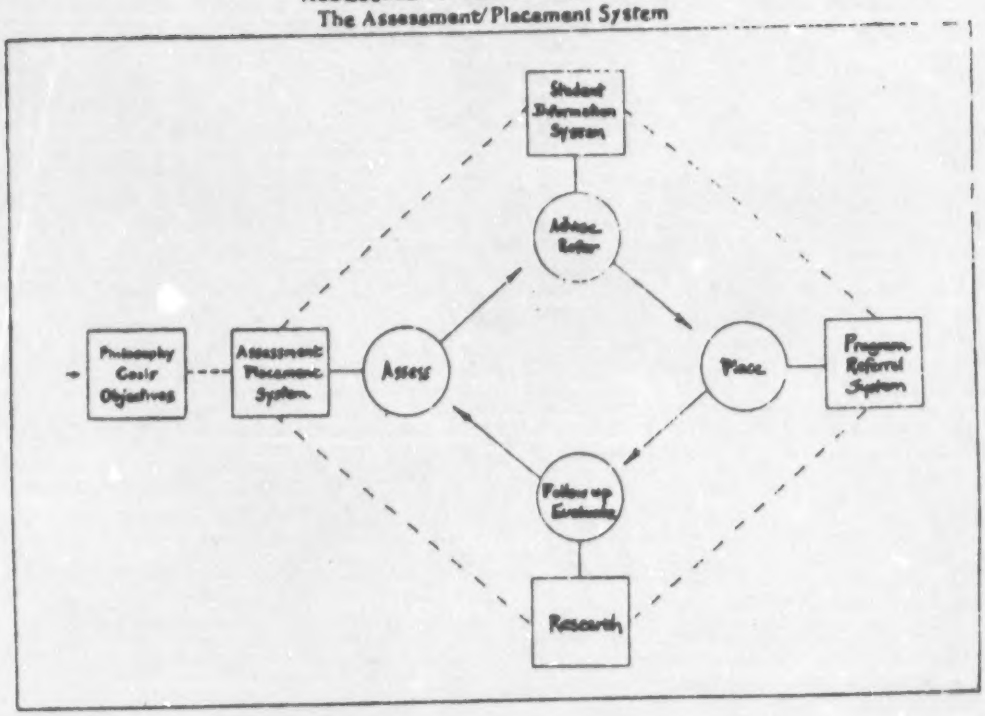
Appendix A

ASSESSMENT/PLACEMENT MODEL

The Assessment/Placement System



The Learning, Assessment, and Retention Consortium (LARC), consisting of 15 colleges in Northern California, has published a Program Guide (1982) which indicates, in the model above, that one of the major objectives of the consortium is the assessment of learning outcomes in the remedial programs offered to students in the colleges of the consortium.

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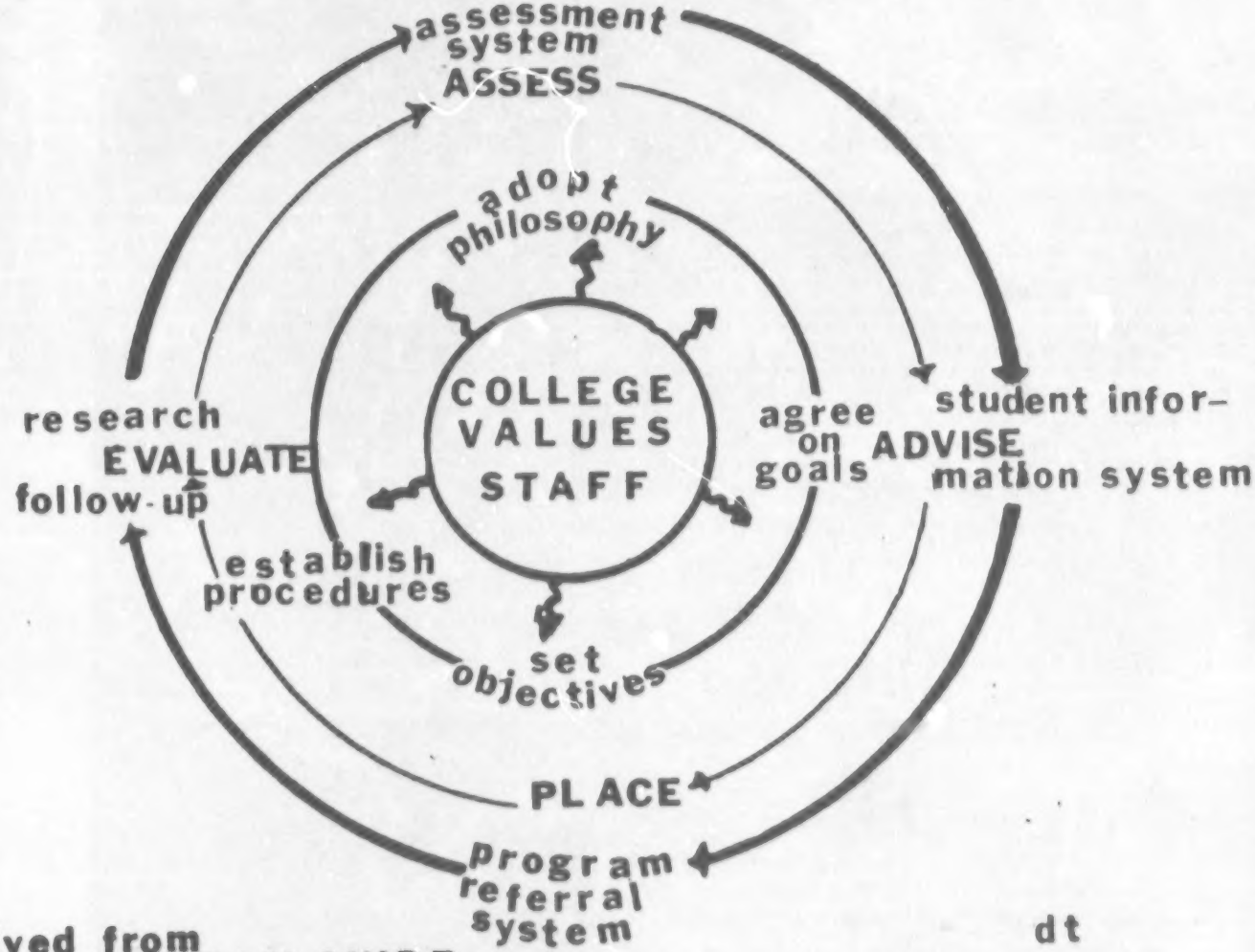
Appendix A (Cont'd.)

THE ASSESSMENT PLACEMENT SYSTEM



derived from LARC PROGRAM GUIDE

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MARYLAND COMMUNITY COLLEGES
STUDENT FOLLOW-UP QUESTIONNAIRE
FIRST-TIME STUDENTS, FALL 1976

The purpose of this questionnaire is to help your community college and the State Board for Community Colleges assess and improve their programs. Please complete it promptly (even if you took only one or two courses) and return in the envelope provided. All answers will be strictly confidential. Thank you for your assistance.

A. Please check what you hoped to achieve at this community college.

37 ☐ 1. Take courses without working toward a degree or certificate
☐ 2. Certificate
☐ 3. Associate degree

B. Please check the one statement which most closely corresponds to your primary reason for attending this college.

☐ 1. Exploration of new career or academic areas
☐ 2. Preparation for immediate entry into a career
38 ☐ 3. Preparation for transfer to a four-year institution
☐ 4. Update skills for a job currently held
☐ 5. Interest and self-enrichment
☐ 6. Other (specify) . . . . . .

C. Was your goal (indicated in item B) achieved by the time you left this community college?

☐ 1. Yes
39 ☐ 2. No
☐ 3. Still attending this community college

D. Did you attend this community college primarily on a part-time or full-time basis?

40 ☐ 1. Part-time (11 credits or less per term)
☐ 2. Full-time (12 credits or more per term)

E. How satisfied were you with the quality of classroom instruction in your program of study? (check one)

☐ 1. Extremely satisfied
41 ☐ 2. Satisfied
☐ 3. Unsatisfied

F. How satisfied were you with the overall quality of this community college? (check one)

☐ 1. Extremely satisfied
42 ☐ 2. Satisfied
☐ 3. Unsatisfied

G. Please respond to this item if you are no longer a student at this college.
Listed below are some academic, employment, financial, and personal reasons why a student might leave college. To what extent were these your reasons for leaving this college? (Check as many as apply.)

43 ☐ a. Achieved educational goal
44 ☐ b. Changed educational goal
45 ☐ c. Scheduling conflict between job and studies
46 ☐ d. Accepted a job
47 ☐ e. Went into military service
48 ☐ f. Program or courses not available at this college
49 ☐ g. Dissatisfaction with program
50 ☐ h. Unsure about my choice of major
51 ☐ i. Course work not challenging
52 ☐ j. Low grades
53 ☐ k. Found courses too difficult
54 ☐ l. Dissatisfied with quality of teaching
55 ☐ m. Transferred
56 ☐ n. Applied, but could not obtain financial aid
57 ☐ o. Financial aid was not sufficient
58 ☐ p. Child care too costly
59 ☐ q. This college was too expensive
60 ☐ r. Personal/marriage

H. If you are no longer a student at this college, look at the above list and select the three most important reasons why you did not return to this college. (List, in order of importance, the appropriate letter [a, b, c, etc.] in the boxes below.)

61 First ☐
62 Second ☐
63 Third ☐

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